What is Claimed is:

[c1]   A method of monitoring traffic in a network comprising the steps of:

receiving a data packet at a network interface further comprising a
run-time system interacting with one or more processing blocks
through an application programming interface; and

processing information in the data packet at a processing block,
thereby generating output using the application programming
interface which can be relayed from the network interface to the host.

[c2]   The invention of claim 1 wherein the network interface comprises a plurality
of processing blocks and wherein a plurality of outputs are generated by the
processing blocks which can be relayed from the network interface to the
host.

[c3]   The invention of claim 2 wherein the processing blocks are generated from a
processing query expressed in a high-level language.

[c4]   The invention of claim 3 wherein the processing query accesses functions
defined in the run-time system.

[c5]   The invention of claim 2 wherein the outputs are condensed statistics of
network performance.

[c6]   The invention of claim 1 wherein the processing block performs filtering on
the information in the data packet.

[c7]   The invention of claim 1 wherein the processing block performs a
transformation on the information in the data packet.

[c8]   The invention of claim 1 wherein the processing block performs aggregation
on the information in the data packet.

[c9]   The invention of claim 1 wherein the run-time system can pass parameters
to the processing block, thereby changing the processing performed by the
processing block.

[c10]   The invention of claim 1 wherein the run-time system can instantiate new

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processing blocks dynamically.

[c11]   The invention of claim 1 wherein the network is a Gigabit Ethernet network.

[c12]   The invention of claim 11 wherein the data packet is an Internet Protocol datagram.

[c13]   An apparatus for monitoring traffic in a network comprising:

a run-time system which can execute at a network interface and receive information from data packets in a network; and

one or more processing blocks interacting with the run-time system through an application program interface such that the processing blocks can process the information in the data packets and generate output using the application program interface which can be relayed from the network interface to a host.

[c14]   The invention of claim 13 wherein the apparatus comprises a plurality of processing blocks and wherein a plurality of outputs are generated by the processing blocks which can be relayed from the network interface to the host.

[c15]   The invention of claim 14 wherein the processing blocks are generated from a processing query expressed in a high-level language.

[c16]   The invention of claim 15 wherein the processing query accesses functions defined in the run-time system.

[c17]   The invention of claim 14 wherein the outputs are condensed statistics of network performance.

[c18]   The invention of claim 13 wherein the processing block performs filtering on the information in the data packet.

[c19]   The invention of claim 13 wherein the processing block performs a transformation on the information in the data packet.

[c20]   The invention of claim 13 wherein the processing block performs aggregation on the information in the data packet.

[c21]   The invention of claim 13 wherein the run-time system can pass parameters to the processing block, thereby changing the processing performed by the processing block.

[c22]   The invention of claim 13 wherein the run-time system can instantiate new processing blocks dynamically.

[c23]   The invention of claim 13 wherein the network is a Gigabit Ethernet network.

[c24]   The invention of claim 23 wherein the data packet is an Internet Protocol datagram.